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ABSTRACT

An internal report of Educational Radio and Television (ERTV), the South African Broadcasting Corporation, this literature survey is designed to provide a basis for specific practical, local research in areas such as curriculum analysis, target audience research, research on listening habits, availability of the medium, cost analysis, and formative evaluation. The literature reviewed includes reports on past research, program experiences, innovative projects and developments, and radio school systems pertaining to the educational use of the radio in countries outside of South Africa. The review is divided into eight sections: (1) Radio Forums--A Strategy for Rural Development; (2) The Radio Language Arts Projects--Adapting the Radio Mathematics Model); (3) Radio Mathematics Report; (4) Radio Vision; (5) Two-Way Radios in Schools; (6) Educational Radio in the United States; (7) A College Degree via Radio; and (8) Educational Radio in Other Countries. A curriculum guide from the South Carolina Educational Television and Radio Networks is appended. (28 references) (CGD)

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EDUCATIONAL RADIO

We Can Learn From Other Countries' Experience

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A literature Survey

by

ALIZA DUBY

Internal Report

ERTV, South African Broadcasting Corporation

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Preface

This report is more a cluster of relevant quotations than an article. The intention is that we, the ERTV staff will learn from them.

I see this literature survey as a tentative document, and hope that fruitful discussions will follow the submission of this report; that it will provide a basis for more specific and practical local research, i.e. South African Curriculum analysis, South African Target Audience research, research on listening habits, availability of the medium, cost analysis, formative evaluation,etc.

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ALIZA DUBY

EDUCATIONAL RADIO

WE CAN LEARN FROM OTHER COUNTRIES' EXPERIENCE

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Radio Forums: A Strategy for Rural Development

The purpose of this section is to derive a series of generalizations about the role of radio and interpersonal communication in rural development from a review of past research and programme experience with radio forums. These generalizations may not only provide useful understanding of the operation of radio forum systems in developing countries, but also represent a step towards the broader issue of how to utilize radio better for development purposes. (Rogers, Brown and Vermeulen, in Muller 1985)

A radio forum* is a small listening and discussion group that meets regularly in order to receive a special radio programme, which the members then discuss. On the basis of the programme and discussion, they decide what types of relevant action to take. This sequence of activities is expressed in the motto of the Canadian forums: "Listen, discuss, act." Emphasis in radio forums is usually placed not only on creating knowledge of new ideas, but also on putting them into practice.

The basic idea of radio forums for rural development grew out of early experiences with radio listening groups in England and other European nations, and was first implemented on a national scale for rural development purposes in Canada in 1941. Rural radio forums then spread to India, where the concept was first tested in a UNESCO-sponsored field experiment in the mid-1950s, and later implemented nation wide. Since then, many countries in Asia, Africa, and Latin America have been the sites of field experiments, pilot projects, and large scale programmes of radio forums for rural development.

The basic elements of most radio forum systems are

1. organizers who establish the forums and help service them;

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*More details of the radio forum format are given in Muller's report p.217-219. See also my report Educational Radio, 'what the research says'

2. written discussion guides that contain information and discussion questions that are distributed to forum leaders prior to the radio broadcast to which they pertain;

3. regularly scheduled radio programmes beamed at forum members who gather in a home or a public place to hear the broadcast and then discuss its content;
4. regular feedback reports, (a) of decisions by the forum members, and (b) of questions of clarification to the broadcast programmers;

The basic underlying assumption of all media forum systems is that multichannel communication is more effective than singlechannel communication. When more than one channel acts in concert to convey messages about a common theme to the same audience, a kind of synergistic advantage is usually achieved. The communication effects attained by two or more channels together are greater than the effects of any single channel alone. This multimedia advantage is greater when the channels involved are maximally different from each other in certain respects, as when one is a mass medium and one is interpersonal.

In short, mass media alone can reach a larger audience at the price of a lesser message impact, whereas interpersonal communication provides a greater message impact at the price of a smaller audience. This inverse set of relationships lies at the heart of the particular advantage of radio forums.

In terms of mass media, radio is the main channel used in forum programmes in most countries, but printed material may also be used in forum systems,

as in China. Radio forums have several advantages over other types of media forums. For example, illiterate people can understand the message transmitted via radio. Also, radio signals can be received despite geographical isolation or barriers such as mountains.

The greatest difference in the increase in knowledge between the forum and the radio-but-no-forum respondents is a clear indication of the superiority of organized group-listening-plus-discussion over individual unorganized reception. Also, the radio forums tended to bring into the open a good deal of knowledge that was latent in the villages. The peasants themselves provided the means to solve many of their common problems by discussing alternative ways of action to cope with the particular problem at hand.

India

The Poona project clearly indicated the superiority of the rural radio forums in India. Several factors accounted for its success:

1. The project was the centre of attention of many institutions and influential officials.
2. The experimental treatments were brief, lasting only 10 weeks. This period may not have been enough time for the participants to become weary, as in non-experimental conditions, when the radio forums are expected to last for years.
3. The project had ample financial and staff support, with highly-trained personnel and financial resources that are usually scarce in developing countries.

Schramm and others (1976a and 1976b), in a thorough analysis of India's experience with radio forums, raised the important question of "whether the forum itself is a less potent tool than had been thought, or whether it is being used and supported less well than it should be".

In order to answer this basic question, he analysed six studies done on radio forums in India after Poona. They agree overwhelmingly on the finding that radio forums are positive as a strategy for improving the livelihood of the peasants. All the six reports cite notable accomplishments of radio forums in creating (1) interest, (2) learning, and (3) action by villagers.

In summary, the information available from the Poona project and from the other studies carried out in India tends to support the concept that the radio forums are a "potent tool" - using the words of Schramm and others (1967a) - for rural development in India and elsewhere.
An important element in the Indian radio forums are the so-called "district organisers" who are a kind of regional supervisor. They develop the forums and help solve many of their practical problems.

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The growth in numbers of radio forums in India has had its ups and downs. In 1965, there were about 12 000 forums enrolling a quarter of a million villagers (Schramm and others, 1967a p. 53). However, these numbers have fallen off considerably in recent years, evidently in part because many of the members grow tired of the effort required for twice-weekly attendance, especially as the transistor radio revolution has led to each villager having his own radio set. Access to radio, once provided uniquely by the forums, is no longer a motivation for forum attendance.

Ghana

The government of Ghana established a radio forum project in 1964-65.

There were 20 half-hour broadcasts, each on a Sunday evening on such topics as: (1) government economic policy and programmes; (2) education and cultural institutions; (3) agricultural marketing; (4) health and family living; and (5) citizenship and community self-help. The radio receivers

had a fixed frequency so the villagers could not listen to any other broadcasting station except radio Ghana.

Overall, the data provided evidence that radio forums are effective for the conditions of rural Ghana and that radio forums are superior to the use of radio alone.

Abell(1968) concluded that the project in Ghana can be considered successful when evaluated in terms of its stated purpose of transmitting information and stimulating rural people toward increased self-help activities.

Ecuador

A field experiment by Spector and others (1963) among Ecuadorian villagers showed that (1) radio alone was superior in providing information about poor health and nutritional innovations, (2) radio plus visual materials was superior to radio alone for the prupose of teaching skills (such as how to construct a latrine), and (3) that the multi-media approach, when combined with interpersonal discussion, was superior in achieving the continued use of the innovation and in securing the desired consequences of the innovations.

Brazil, Nigeria & India

A series of field experiments in Brazil, Nigeria, and India, in which radio forums were compared with other approaches to providing information for rural development by Rogers and others (1970) in Muller (1985) and Roy and others (1969) in Muller concluded: The efficiency (defined as a ratio of effectiveness to cost) of radio forums in diffusing innovations is much greater than for either (1) literacy-reading classes or (2) community

newspapers, whether cost is measured (1) for peasant-receivers or (2) for change agencies. Literacy should be viewed as a long-term developmental investment that is unlikely to pay off in increased knowledge or adoption of innovation in the short-term, such as one year. The community newspapers are essentially a single-medium approach; they do not achieve the effectiveness of a mass medium combined with interpersonal communication (as the media forum does).

Zambia

The Zambian experience in terms of the implementation, organization, administration and effectiveness of Radio Farm Forums as a means of imparting agricultural knowledge to peasant farmers in rural areas is described here (Mutava, 1987)

The main purposes of the Radio Farm Forums were:
Firstly, to develop the rural areas by improving or replacing the traditional unproductive agricultural practices with improved modern methods and,
Secondly, they were intended to help the rural population to keep-up with the rapid urban and industrial changes, and also to try and limit the rural urban drift.

Radio Farm Forums were thus seen as an effective model of communication of knowledge and new ideas to rural populations; particularly on modern scientific methods of agricultural practice that would eventually lead to increased food production for both home consumption and export.

It was, in effect, one of the integrated approaches to the rural development where the radio created a general awareness of existing problems and at the same time offered information on new opportunities.

Most programmes broadcasted are geared toward providing some kind of 'on

the job training', in the sense that the information and skills so acquired can be used immediately by the farmer and are in line with seasonal farm activities.

To assist continuity in learning, programmes are designed in such a way that they stimulate and motivate the Forum members to a discussion of their problems and seeking solutions that would help them locally. Questions

asked are frequently answered on the air in subsequent programmes or sometimes in writing direct to groups who asked them. Requests made for assistance in projects are directed to the agricultural extension personnel in the area involved. In this way some form of follow-up is made to ensure continuity of the Radio Farm Forums.

Although RF programmes are meant to be educational and informative there is also an element of entertainment so that the listeners are not bored. Presentation formats used include straigh-talks, discussions, interviews, drama, features and documentaries.

Agricultural personnel at the grassroot level (extension workers) help in training chairmen and group secretaries and in implementing group decisions to improve their farming practices. They visit and supervise the RFF regularly and try to encourage them. Besides this he obtains copies of discussion reports from the Forums to forward to Provincial Officers and Headquarters.

To form a tow-way communication the Forum participants also have roles to play. They have to attend meetings regularly and promptly and maintain silence during the broadcasts. They are expected to listen and participate in meeting discussions in an orderly and disciplined manner. They are to express their doubts and raise questions and seek the assistance they might

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In Appendix 2, a list of programmes that were produced using the radio forum is given. Some of their ideas might be adapted to our situation.

need as individuals from the government for improvement and development of farming.

Apart from roles played by all members the chairmen and secretaries are entrusted with further duties. A chairman is supposed to encourage members to attend meetings regularly and on time. He is also to conduct meetings in a democratic way, encouraging all members to discuss freely and in a disciplined manner. He is expected to lead or open the discussions and end them on time.

The secretary is to keep in touch with the extension staff for supply of reference material, batteries when available, and other information or assistance required by the RFF's. He maintains all the documents and correspondence of Forum and marks the attendance register. He displays photographs and other visual material received. The secretary, in way, acts as convenor of the meetings as he is the one who introduces the programme to the other members based on the information from the pamphlets and programme schedules which he receives before the broadcast starts.

The staff at the Headquarters analyse discussion reports to examine the reactions of RFF's to the programmes and to identify their specific needs.

Refresher courses, workshops, and seminars are organized and conducted periodically by staff from Headquarters for provincial and district based staff.

Feedback is mostly through question and answer. Questions and points raised by the RFF's are answered either on the air, or in writing and sent to specific RFF's through their secretaries. RFF members have the right to request for changes in programmes so as to suit their specific needs.

Although the Radio Farm Forum approach has actually proved very effective in providing agricultural information to the rural population, there have been some bottlenecks which have had a negative effect on the whole exercise;

It's limitations are:

1. The listener can only get the message there and then. No listening ahead or re-listening as it would be the case if one reads a sentence or paragraph in a book. A point missed is gone! It is one-way communication and the speaker is never sure whether he has communicted or not. He does not know, immediately, what the reactions of his audience is. Although the groups can ask questions it always takes a long time to get responses from the radio teacher. The point is that

   there is no immediate response as the case would be if there was two-way communiction. Besides, the number of questions answered on the air depends on the availability of broadcast time. This causes delays and frustrations.

2. Again, the written answers to the groups cannot be made available to all the members due to illiteracy problems.

3. There is also, always, a risk of noise that can detract the listener's attention - such as poor radio reception, thunder-storms, etc.

4. In addition radio batteries are not always available in the rural areas and radio repairs sometimes takes ages.

5. Other problems that hamper the smooth operation of the RFF's originate from forms of cultivation, religious beliefs and attitudes.

6. Some of the rural population's agricultural practices involve shifting from one home to another. For example, the Kanode in North-Western Province. During the cultivation periods people leave their permanent

homes/villages and go to live where their fields are. Since the fields are usually scattered due to scarcity of arable land and space, it is always difficult for Forum members to keep in touch, which results in disruptions to listening patterns, by the group.

7. Members of some religions do not like specific programmes. The Seventh Day Adventists for example, object to programmes about pigs and tobacco This creates divisions among members of the groups.

8. Supervision of RFF's is extremely difficult during the rain season due to lack of weather roads. In other seasons there is an acute shortage of transport and staff.

9. Some printed materials have no or little use in some remote parts because most of the peasant farmers cannot read. They entirely depend on listening to the radio with all its limitations.

Sierra Leone (Radio Campaign)

Coldevin (1986) describes a case study of Sierra Leone. Where a radio campaign which aims to teach rural people crucial agricultural techniques was employed. The article describes the importance of the project as well as the importance of conducting very well designed formative evaluation.

Results! The first and perhaps most important result was that the campaign was successful in raising information levels significantly among all groups with a mean improvement of 59 per cent for the total sample. The most impressive results were realized among the upland-only farmers who started from a low pre-campaign knowledge base. The post-campaign score, however, was higher than that registered by their 'undeveloped' swamp farm counterparts, a finding which highlights dramatically the combined use of media to induce notable knowledge gains among a previously uninformed and, for the most part, illiterate rural audience.

The second major finding was that while all village-based media presentations were effective in raising information levels, no one media combination or repeated version thereof was significantly more advantageous than another.

Interactive Radio

The following are extracts from the Development Communication report No.79 Washington D.C. 1985.

Searle, concludes that interactive radio is effective for the instruction of primary school subjects, and that both trained teachers and untrained classroom proctors can use radio lessons effectively.

Instructional radio has been "reinvented", and now stands ready to serve as a powerful new tool for educational development. Today, it holds promise for alleviating some of the most pressing problems faced by educators throughout the world. Radio instruction can now, with assurance, be used to rapidly improve teaching quality, to increase educational access, and to introduce more subject matter. (Brock, in Development Communication report no. 79 , 1975)

The issue of Development Communication Report focuses on a decade of educational research, development, and evaluation of 'interactive radio instruction; a set of methods that is a major source of the revitalization of educational radio. When used with these methods, radio education is active, absorbing, and effective. The interactive radio approach has shown major student gains in nations as diverse as Kenya, Nicaragua, and Thailand,
and in subjects as different as language and mathematics. A 'community school: model is also in operation, in the Dominican Republic, teaching students late in their working day with radio classes organized by community aides.

This powerful new instructional tool is becoming available at a time when the search for improvement in primary education is gaining increased

attention. While the developing nations have made enormous quantitiave strides in providing educational access in the last two decades, both quality and efficiency have suffered. Failure, repetition, and dropout rates are astonishingly high, and most children fail to move beyond the first two or three grades. The skills of those who do go through the entire primary cycle are often below desired norms. And with population growth continuing, the prospects for improvement using conventional educational means are grim - in fact, educational conditions could well decline further.

The vigorous, systematic use of instructional radio now holds promise for breaking out of the Radio Mathematics Project was a highly experimental project designed to investigate the feasibility of using radio as a medium of instruction in the teaching of elementary school mathematics. The project, located in Nicaragua from mid-1974 to early 1979, was carried out by Stanford University under contract to the US Agency for International Development. During its life, the project developed mathematics lessons for the first four years of elementary school. These lessons - daily radio broadcasts plus postbroadcast activities conducted by the classroom teachers - proved to be extremely successful in improving the students' mathematical achievement.

Radio Math's success can be attributed largely to the innovative style of the broadcast lessons, a style characterized as "interactive" in recognition of its mimicry of a conversation between students and teacher. The interactive lesson style is easily adapted to the teaching of many other subjects, and has been used, with minor modifications, to teach English as a second language (see the Radio Language Arts Project article in this report), and initial reading (see the Radio-assisted Community Basic Education Project article in this report). In all these settings, the lessons proved daily instruction, and are intended to replace rather than supplement existing instruction in the subject matter.

Lesson Style

Each lesson consists of two parts, a broadcast part and a nonbroadcast part conducted by the classroom teacher. These two are complementary, with content divided so as to take best advantage of strengths and weaknesses of both radio and classroom teachers.

The broadcast portion of the lesson carries the major burden of instruction, so that the lessons are successful even in classrooms where the teacher cannot fully support the radio-based instruction. The nonbroadcast activities are similar to what teachers are accustomed to using. In many schools in developing countries, teachers are overburdened; they may have far too many students, or they may have students in several grades. Furthermore, in many countries, there are not enough credentialed teachers, and even they may be poorly trained. For these reasons, teachers cannot consistently contribute to radio-based instruction in classrooms, and the success of these lessons will depend upon how well the radio can teach with less than optimal support. (Friend)

The Radio Lessons

The interactive radio lessons are designed to provide direct instruction to the students. The radio teachers (usually two or three) explain concepts, provide examples, and guide the students in the completion of exercises. Instruction is done more by examples than by verbal explanations. Instruction has the flavour of guided discovery. Vocabulary is highly controlled so that explanations and examples are phrased in language suitable for the children's level of development. Technical vocabulary is used sparingly, and only after the concept to which it refers is well understood. Sentences are short and conversational as befits an oral medium. Most of the time the actors speak directly to the children in the classroom, assuming the roles of teachers. Outside of short interludes of dramatization, the action takes place in what is presumably a classroom.

Most of the instruction is oral. Worksheets are sometimes used to supplement the lessons, but only to provide practice exercises, not to provide printed explanations. In the mathematics lessons, worksheets are

used only in the first grade; in the second, third and forth grades, students copy exercises into inexpensive exercise books. In the Radio Language Arts lessons and in the Radio-assisted Community Basic Education reading lessons, worksheets are used at all levels, because the subject material cannot be taught well without using printed material. Other supplementary materials, besides worksheets, are used sparingly. In the mathematics lessons for second grade, twelve small posters were prepared but otherwise only bottle caps, seeds and stones were used as counting devices.

Active Student Participation

The students listening to the radio lessons are expected to participate actively, responding aloud to oral questions, circling pictures on their worksheets, writing in their notebooks, reading numbers from the blackboard counting seeds or sticks, and so on. Appropriate pauses are provided for student responses so that students can complete their exercises as the radio lesson is going on. These student responses are frequent - one every 20 or 30 seconds - and are most noticeable characteristic of interactive lessons.

Indeed, we call this radio application "interactive" precisely because of these frequent responses that give the radio lesson the appearance of a rapid-fire dialogue between radio and the students.

After every student response, the radio gives the correct response so that the children can immediately compare their own responses with the correct one. This is an adaptation, for radio, of the principle that immeidate reinforcement of responses promotes greater learning. Since radio is a mass medium, reinforcement cannot be individualised, so instead of the classroom teacher telling each student whether or not his/her response is correct, the answer is simply announced and the decision about correctness is left to the student. This adaptation of the immediate-reinforcement principle to group use was designed by the Radio Mathematics Project after

several months of experimentation with various ways of handling reinforcement.

Interactive radio students are intensely, involved in each broadcast lesson. Although each exercise in each lesson follows a fairly stereotyped form, the children do not become bored, partly because of this intense involvement, and partly because there are frequent changes of topic.

In the Radio Maths lessons, as many as a dozen topics might be touched upon in any 30-minute session, with only two or three minutes of instruction in each topic. This "segmented structure" is not simply to prevent boredom or to accommodate the short attention span of young children; it applies an important pedagogical principle: distributed practice leads to greater long-term retention than does massed practice. If the total instructional time to be devoted to a specific teaching objective is 30 minutes, the most effective use of that time is in three-minute segments taught on ten different days, rather than in a single 30-minute lesson. Distributed practice is particularly suited to the teaching of "skill" subjects like arithmetic and reading.

Instructional Design

Segmented structure is characteristic of the radio lessons. It was originally an adaptation of the format used by the "Sesame Street" television programme, though with some important differences. Because of the students' age and their lack of exposure to children's programmes, it was not necessary to carefully integrate an element of entertainment into the radio lessons. Although the radio lessons include elements that are clearly for motivation or diversion, they are generally not integrated into the instructional segments. Nevertheless, it was found that some diversionary activities provided a few minutes of respite for the students from the intense mental effort required during the instructional segments.

Songs and physical activities were found to be most successful forms of diversion for them. Activities such as jokes, riddles, stories, or music

for listening are unneccesary because the children find sufficient motivation in the high degree of participation required by these lessons.

Research-based lessons.

Radio Math's lessons are reinforced by rigorous research to validate their teaching effectiveness. Before being broadcast, the scripts and tapes are reviewed and revised by project producers. After a lesson is broadcast, a random subset of children are tested about specific results intended from the lessons's segments. If achievement is substandard, the faulty segment is redone and broadcast in its improved form some weeks later. This on-going formative evaluation is a basic, innovative characteristic of this radio model; validating the overall series of radio lessons as an effective tool.

The Radio Language Arts Project: Adapting the Radio Mathematics model*

In 1979, the U.S. Agency for International Development approved a direct follow-up to the Nicaraguan Radio Math Project for the purpose of applying and adapting the findings to a different subject area- reading/language arts, and a different region - Africa. The result was the Radio Language Arts Project (RLAP) in Kenya, which was directed by the Academy for Educational Development in cooperation with the Kenya Institute of Education. Running from 1980 through 1985, the project's specific goal has been to teach English to rural Kenyan school children in standards (grades) one to three using an intensive, rapid-based instructional system. Daily, half-hour radio lessons are braodcast throughout each shcool year, supported by the classroom teacher and limited print materials. They help children acquire the speaking, listening, reading, and writing skills necessary to function in a school system where all subjects are taught in English after standard three.

The project's broader goal has been to test the feasibility of adapting Radio Math's instructional system design to a new subject area.

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*The Radio Mathematics project is described in the next chapter

These principles can be divided into three main categories. First, project staff implement the curriculum methodically through systematic planning, distributed learning, and cyclical instruction. Second, they make effective use of the radio medium with techniques such as intensive broadcasting, interactive learning, immediate reinforcement, an engaging instructional pace, and maximizing the time devoted to the task. Third, they use other instructional modes to complement the radio, including the classroom teacher, printed materials, and readily available props.

Adaption Challenges

Both mathematics and English depend on children learning to apply a complex set of formal rules to a variety of situations. Mathematics, however, is more predictable than language. In part, this is because linguistic rules and their application tend to be less regular than their mathematical counterparts. Furthermore, language is a combinational skill. A finite set of rules govern how to join elements on two levels - form and meaning - to produce an unlimited number of sentences.

The RLAP team first confronted this difference when preparing the instructional design document known as the scheme of the work. We took far longer than expected to complete the first year's scheme because it was so difficult to articulate a language cirriculum with the precision necessary for an effective, media-based instructional system.

Instructional Design Decisions

The instructional design divides the syllabus' content into units called frames. Each frame represents approximately one week's instructional activities, organized around linguistic functions and notions (for example, personal emotions). For each of the four language skill areas (speaking, listening, reading, and writing), the frames specifies the necessary grammatical structures and suggests relevant words from the year's required vocabulary. (A separate record-keeping system tracks use of vocabulary items in each lesson, identifying those that have been mastered and those

requiring more work) Rather than behavioural objectives, the frame uses competencies that describe expected student performance in open-ended terms. Finally, the frame suggests a setting that writers can employ as a vehicle for using the specified language.

Immediate Reinforcement

In the first year of radio English lessons, an immediate reinforcement similar to the Radio Math approach was provided in which students respond to a question, and the radio teacher immediately follows with the correct response. It is for the student to determine whether or not his or her answer was correct. By the middle of standard two, however we began to encounter difficulties in situations where more than one answer was admissible. In such cases, we chose to have radio reinforce the children with at least one correct answer, and sometimes two or three alternatives. In actual practice, it was found that children who responded incorrectly the first time did use the radio's model to correct themselves. Children who had given a different variation of the correct answer, however, often had learned the relevant rules and maintained their response choice regardless of the radio's alternative suggestion.

A related difficulty arose as we moved into standard three. By this point in the curriculum, children had to produce more complex and lengthy

language. The basic format for oral interaction between the radio and the children began to lose its utility. What works well for simple questions and answers is less successful when the students may take 20 or 30 seconds to produce any one of a large variety of reasonable responses. We tried to minimize these situations during the broadcast lessons, directing teachers to have children practice more complicated interaction during the postbroadcast lessons.

Teaching English in English

Another unique aspect of teaching a language by radio is that the subject matter is also the means of communication. In Nicaragua, the mathematics lessons were produced in the childrens' first language, Spanish. In Kenya, with over 40 vermacular languages, it would be impossible to produce

The Radio Language Arts Project (RLAP), a five-year research and development project, focuses on using mass media for development within the context of the formal educational system. Its specific purpose is to develop, implement, and test the effectiveness of an instructional system that uses radio intensively to teach English as a foreign language at the lower primary school level (grades one to three).

The primary significance of the Radio Language Arts Project to the study of mass media and development lies in its emphasis on applications of broadcast radio with strong theoretical potential but limited practical success. Specifically, the RLAP is operating in the formal education sector at a time when many experts believe radio to be better suited to nonformal education. It is using intensive radio-based instruction instead of the normal practice of using radio to supplement more conventional teaching methods. it is systematically evaluating the effectiveness of formal, intensive radio in teaching English as a foreign language to young children, and documenting the techniques used to achieve these results when there is little hard evidence or detailed methodological description of successful radio language teaching available in the literature.

The RLAP envisions interacative radio as an appropriate, cost-effective technology to reach the disadvantaged rural population for whom educational opportunities are frequently limited because of poor educational resources. For this reason, among others, English-language arts programmes are broadcast as part of the normal school curriculum during school hours.

The daily 30-minute lessons fit into the regular English period in the school timetable. Radio is the major medium of instruction, but teachers have an important role during the broadcasts, in pre-and

post-broadcast activities, and in teacher-led complementary lessons. The radio lessons are designed to assist teachers in the classroom, enhancing their effectiveness in teaching a difficult and important skill.

One of the strengths of the Radio Language Arts Project is the instructional design principles on which it is based. Several of these are applications of approaches validated by the Radio Mathematics Project.

- Intensive Use of Radio. RLAP children are exposed to instructional radio for learning English almost 25 times as long as their counterparts
  in control classrooms.
- Cost Control. The project minimizes two particularly significant costs:
  printed materials and teacher training.
- Systematic Instructional Development. The RLAP is nog a curriculum development project. Instead, it seeks to determine how the existing
  curriculum can best be taught with the help of radio.
- distributed Learning. A given competency is taught over several consecutive lessons after a period of several weeks, it is maintained
  over several more lessons.
- Active Learning. Children learn better when they are actively involved
  in the learning process. Writers try not to let more than 15 to 20 seconds lapse without requiring some soft of response from the children

RLAP broadcasts (Edgerton & Selak in Muller, 1985) are designed to help learners keep the meaning of words and structures they are practicing firmly in mind as the lesson proceeds.

E.R. of the countries

Sweden, Canada, India, Ghana, Niger and Tanzania. Most of these countries have attempted to make the fora part of the continuing education. India is the first developing country to adapt the Canadian Farm Forum experience to a largely illiterate and poor rural population. In Niger, members of the Niger Radio Clubs are themselves involved in the production of radio programmes. (Shramm, 1966) while in India and Ghana, the programmes are mostly produced by radio stations.

This is accomplished in several ways:

- through modelling and demonstrating activities carried out by students in the classroom;
- through radio dramas and vignettes made vivid by lively action and the generous use of sound effects;
- through careful contextualization, using structures and vocabulary that students have already mastered;
- through the use of pictures and text distributed on worksheets;
- by means of drawings and written material that the classroom teacher puts on the blackboard.

RLAP's methodology, can aptly be called the interactive radio method, in view of the most salient and distincitve single feature of RLAP broadcasts.

The most important organizational characteristics of RLAP methodology are adherence to distributed-learning principles in instructional design, and the use of a semantically-based functional-notional syllabus to organize the elements of instruction.

The RLAP series of radio lessons adheres in general to direct-method principles of language teaching. Post-audiolingual techniques, in particular cognitively-grounded pattern exercises, are used where they are appropriate and in cases where the limits of instructional broadcasting appear to justify their use.

The Honduras project, based closely on that in Columbia and similar to the Radio Schools projects in Peru, El Salvador, Mexico and other Latin American countries, sets out to teach formal basic education including literacy and arithmetic, besides providing programmes related to religion, health, agriculture, civics and sports. Radio programmes constitute the core of the instruction and are supplemented by wallcharts and other printed materials (Lyll, 1967)

In the U.K., the BBC broadcasts a programme based on folklore, called The Archers. The programme which began some 30 years ago as part of a drive by the Ministry of Agriculture to modernize farm practices, commands an audience of millions. The characters portrayed are widely known and the programmes, broadcast on five days a week, attract urban as well as rural listeners. Many developing countries. e.g. Bangladesh, Republic of China, Nepal, Pakistan, Sri Lanka, Botswana, Tanzania, Uganda and Zambia, use the medium of radio for education.

A church-based organization in Rwanda has developed a set of film strips covering much of the national primary school syllabus especially in literacy, mathematics and French. These are linked to radio programmes for use in special primary schools set up in the less developed areas of the country.

Some authors such as Frey (1976) hold that through radio one can not only motivate pupils and make a topic more meaningful but also start new Educational Programmes. Preliminary results of this innovation showed that the students in radio classrooms seemed to remain attentive for the full 30 minutes of each radio lesson and were equally keen to hear the instructional as well as entertainment portions of each broadcast. In addition, two series of year-end tests showed that the pupils in classrooms in which radio programmes were used along with related teacher-led activities learned more than their peers in traditional classrooms.

McAnany, (1973) on the basis of his review of development-oriented projects in the developing world reported that educational radio is reaching only a fraction of its audience and that the potential of the radio as a medium of education has not been fully exploited.

Radio Mathematics Project
Nicaragua (IDCA, 1983)

The Radio Mathematics Project was an innovative effort to bring together two related technolgies - radio and systematic instructional design - and to evaluate their effectiveness in teaching primary school mathematics. The project operated in Nicaragua, a developing country which, like many others, suffers from a scarcity of fully qualified teachers, particularly in schools outside major urban areas. In such settings, traditional primary school curricula often do not serve the basic literacy and numeracy needs of rural students. The Radio Mathematics Project attempted to improve the quality of mathematics instruction with a curriculum focused on basic skills in a context relevant to the rural children it serves.

The programme functioned entirely within the formal primary school system.
Radio, the main instructional medium, was used to broadcast daily lessons to children in the second, third, and fourth grades of public school.

The project began operations in Nicaragua in June 1974 and pilot-tested the first lessons shortly thereafter. The first full instructional programme - for first grade - was developed and field-tested during the school year of 1975. An additional grade-level was developed each year until fourth grade lessons were completed.

The daily mathematics lesson consisted of a 30 minute radio segment and post-broadcast activities conducted by the classroom teacher with the help of a teacher's guide prepared by project personnel. Lessons were broadcast at fixed time each morning by the national radio

They consisted of a series of instructional and entertainment segments, designed to elicit four to five active responses (writing answers, responding aloud, singing) per minute from the children. The pacing gave the children the illusion that the radio was listening to them and that it was attentive to their responses. After the radio broadcast, the teacher continued the lessons for the remainder of the mathematics period. Teachers were encouraged to adapt activities suggested in the teacher's guide to the needs of their students. Weekly achievement tests were given in selected classes to determine the students' progress and the need for adjustments in the curriculum plan.

An evaluation of the project conducted in 1976 showed that students in the experimental radio classes scored significantly higher ontests than their non-experimental peers: the mean post-test item score for the experimental groups was 65 opercent, for the control group, 40 percent. Later, formal evaluations revealed even greater advantages for the radio classrooms.

The methodology employed by the Radio Math Project was, in fact, intended to be a generalizable system, applicable to other subject areas in different country contexts. The important contributing factors to the effectiveness of Radio Math - the use of frequent student responses, frequent review so that math skills are not lost, the emphasis on formative evaluation, and the ongoing consideration of cost factors and principles of sound operational implementation - are of significance to those who will be planning adaptations of the project in the future.

Radio Vision

Radiovision is another development in this area. The BBC claims to have started Radiovision systematically in 1964. Sound tapes with either firlm strips or slides accompanied by a teacher's guide are used on a wide range of themes aimed at schools and post-school institutions. Sweden produced as many as 60 new radiovision series in 1976, while Denmark Radio made about 50 new radiovision series for schools during 1976/77. Radiovision may offer a cheap substitute for educational TV. In the West, however there is a widespread opinion

among teachers and media personnel that the child, exposed to high-quality TV programmes, and being increasingly able to get access to a treasury of video and home computer of entertainment and knowledge, will not accept 'old fashioned' technology of stills.

Two-way Radio in Schools

A brief description of some trails from elsewhere in the western world will be mentioned here.

"The country Education Project" in Victoria, Australia, tested the use of two-way radios to bring educational resources to isolated children studying correspondence courses in schools and to increase interaction among rural schools. Eight rural Victoria schools and the Secondary Correspondence School in Melbourne used two-way high-frequency short wave radio transceivers for 18 months. Data were collected form log books, rural teachers, 22 Correspondence School teachers/supervisors and 38 students. The Correspondence School teachers used the system on average of 25-30 times per month for curriculum meetings and tutorial sessions averaging 15-30 minutes in length. The subject taught most frequently by radio were: French, legal studies, art, politics and Italian. Students used the system for formal subject meetings and for informal socializing. Rural teachers sometimes used the radios for meetings with neighbouring schools. All users were enthusiastic about the radio system and felt it improved subject understanding. Although it increased their worklaod, teachers felt the system allowed more in-depth treatment of some subjects and easier advisement, motivation, and diagnostic and remedial work. Respondents noted problems with reception, scheduling and the lack of accompanying visual information but most participating schools have purchased the cost effective equipment". (Canoby, 1983)

Alice Springs School. (Hikley , 1985)

Each day, this school transmits radio lessons to its one hundred and thirty pupils who live in isolated homesteads and camps scattered over an area of approximately 650 000 square miles within the southern half of the Northern Territory and the far north border areas of South Australia. These boys

and girls, from four-to thirteen-years old, are divided into class groups with a specific teacher and a particular time slot for their daily radio lesson. The radio programmes, which last from 15 to 20 minutes, may deal with mathematics, language, social studies or current events. The teaching of new concepts on radio is avoided, since this is the main aim of the correspondence packages. This is because of the irregularities encountered with radio transmisssion and reception, where inclement weather conditions play havoc with voice clarity and signal strength.

Probably the favorite radio lesson is "News", where classmates 800 miles apart can share some of the exciting happenings of their particular environments.

The advantage of the system is that rather than imposing solution to local problems for a central authority, the system encourages schools to use local initiative through their appropriate area committees to solve their difficulties. (The Radio-forum method is also designed to cater for the same problem but this system allows intellectual communication between communities in this way enriches and enlarges the pool of contributors and intellectual contributions that participate in this endeavour.)

To add to the intercommunication between the school pupils the system was used also to link teachers with their distance-peers (Australia) that was used to discuss recent developments in curriculum and other teaching issues, at a reasonable cost and within an accepted degree of clarity, consistency and reliability.

Educational Radio in U.S.A

Characteristics of Use Patters-Audio/Radio (National Center for Ed. Statistics, USA.)

Audio/Radio use appears to have stabilized in the past three years for almost 60 per cent of the users. Where change occurred:

- Elementary teachers most often reported increased use (30 per cent) - Senior high teachers showed the greatest decrease (20 per cent). Audio tapes and records were by far the most frequently used:
- Ninety-seven per cent of teachers reported spending some time each week listening to audiotapes/cassettes and about 86 per cent indicated use of records.
- Only 16 per cent indicated direct off-air radio use.

Forsythe in his report "Planning for highter education" head his report with a subtitle: 'Instructional Radio: So good but so neglected" However the following details are described:
There are approximately 750 radio stations in the United States licensed to colleges and universities who use them for a variety of purposes including formal instruction. At Purdue University, more than 8 500 hours of college credit have been earned since 1970 by students listening to courses aired on Radio Station WBAA. In New York, the Albany Medical College operates what has been described as the largest postgraduate classroom in the world using the FM capability of Station WAMC. In Buckhannon, West Virginia - Wesleyan College operates a radio-based extension service that is showing a substantial profit in just two years of operation. Radio is an integral part of the British Open University and of other foreign instructional services, and it is the predominant national medium of instruction in a number of developing countries.

Nevertheless, there is a considerable gap between the role that radio could play in education and the role that it does play. The majority of our collaboration with National Education Radio (NER), an organization composed of 150 to 200 of the larger stations in the United States owned by colleges, universities, and public school systems. Most of these higher education institutions devoted their major time and attention to cultural programming, and were themselves not very interested in instructional programming.

The benefits of membership in the National Public Radio fraternity are enormous to an industry characterized by poverty. Upon meeting CPB criteria and being accepted into NPR, a station receives free

interconnection with the Washington-based NPR network, large quantities of excellent cultural and informational programmes, a variety of special membership services and direct cash grants now totalling more than $30 000 per station per year. To reap these benefits, a station must meet certain minimum and not unreasonable standards of power, staffing, and operation. However, there is one CPB criterion which has had a profound effect and which is seen by many as both unwarranted and unwise: that is, the criterion discussed earlier which excludes form membership those stations whose programming is primarily instructional in nature.

Virginia Wesleyan offers a fine example to those colleges that would use radio to serve new missions. Key administrators at Spring Arbor College, Michigan, and Andrews University, Michigan, are engaged in developing radio broadcasting as an integral part of their extension activities. The University of Mid-America, known principally for its television offerings, recently developed its first radio course. Called "Foundations of Amercian Nationalism," it is an undergraduate history course consisting of 30 half hour programmes featuring a dialogue between hisotrian Henry Steele Commager of Amherst and Henry Owens of the Brookings Institute. A year in creation, it is a full-blown instructional development product with accompanying study guide, readings, teacher's manual, and a pool of test items. It was offered for the first time last spring and quickly elicited the interest of many institutions.

Even National Public Radio, no doubt spurred by the successful adaptation of public television programmes for instruction, has finally established an office for similar activities. They will create learning packages based on already existing National Public Radio programmes and, make them available to education institutions.

Such efforts surely will multiply as college and university officers become acquainted with the merits of the medium.

A reader, designed as a supplement to workshops on radio support for literacy was written by Muller (1985). The following are some segments from this reader that we can probably learn from.

This reader is intended to assist workshop participants to put radio in the broader perspective of development support communciation and to provide background information on the use of radio in adult literacy education.

A variety of resources is needed for the eradication of illiteracy in a developing society. Radio is one of the resources. Radio can help to solve certain problems from which literacy programmes suffer all over the world. It can help to solve the problem of inadequate infra-structure because radio waves do not need transport. Radio can help to solve manpower problems because it can train teachers, tutors and monitors and can assist them directly in the teaching process. It can reduce the problem of production of instructional materials and last not least radio can mobilize and motivate for literacy and, after all, radio can do all this at reasonable costs.

Radio is not the perfect medium, but for the experience of many countries throughout the world it is clearly best used in combination with other media of communication and with a strong supporting component of field workers who can engage listeners in the process of communication.

In general, educational broadcasting exhibits four dominant characteristics:

(1) its programmes are arranged in series to assist cumulative learning;
(2) they are explicitly planned in consultation with external educational advisers.
(3) they are commonly accompanied by other kinds of learning materials, such as textbooks and study guides; and
(4) there is some attempt made to evaluate use of the broadcasts by teachers and students.

A College Degree Via Radio

One of the most ambitious and innovative uses of FM sub-channels for reaching and teaching off-campus learners is currently operating in the halls and hollows of north central West Virginia. Launched in 1975 by West Virginia Wesleyan College, in coopertion with four other local institutions

Alderson-Broaddus College, Davis and Elkins College, and West Virginia University - the programme is unique. When fully developed, it will be the only full-blown extension service offering credit courses that will enable persons to acquire a baccalaureate or master's degree solely through radio-based instruction. The extraordinary success if the project thus far is indicated by the fact that it became self-supporting a year ahead of schedule.

West Virginia Wesleyan itself is a private 100 year-old institution with a traditional on-campus enrolment of 2 000. The radio extension, about to complete its fourth year of operation, has a current enrolment of 943. Who are these students? For the most part, they are persons who, by virtue of adult responsibilites, financial pressures, geographic location, physical disability or a combination of these, have been bypassed by the education system.

The majority are housebound wives and mothers. The next largest group is composed of persons who work at jobs outside the home, many with one or two years of college who were forced to drop out for financial reasons. The third largest clientele are the blind and physically handicapped, and the fourth, persons in prisons.

In addition, however, there are teachers, nurses, volunteer policemen and firemen, and other professionals and technicians in need of continuing education, who also are served by the radio-based graduate and technical programmes.

Since the fall of 1976 these students have been taking courses at home, using either special SCA radio receivers or cassette recordings rented from the school. Instructors currently favor broadcast over audio cassettes as a delivery system because more broadcast students complete the courses than do those studying by cassette. It appears that having to listen to scheduled broadcasts help provide the discipline many students need to complete a course within an established time frame.

Three semesters a year are offered, and students take an average of three courses a semester. The most heavily enrolled programme is business administration. The second largest enrolment is in self-help courses: Those that deal with parenting, the family, social problems,

self-realization, and increased assertiveness. Art appreciation, an extremely popular course, uses a book of reproductions; students concentrate on the visual material as they listen. A programme leading to a degree in computer science is among the offerings, for which students lease a home terminal from the school at a cost of $150. The terminal is connected to the home telephone, and by dailing a central number students are tied into the college's central computer facilities. Print materials accompany all courses and, since the system provides for only one-way radio communication, there is an emphasis on one-to-one contact through collect telephone calls and the mails.

An early attempt to establish local listening centres failed. The thought was that such centres would provide a place for student interaction, and also obviate the need for individual students to rent the FM radios necessary for receiving the SCA signals. But the students, scattered far apart throughout the region, had no wish to drive long distances in bad weather and preferred the privacy of their homes. Otherwise, some said, they could just as well have gone to night school.

Cost: 14c per student hour. At present, there are 24 radio courses being offered in such subjects as English, sociology, philosophy, religion, phsychology, history, business administration, and the arts, and new course offerings are being developed for both broadcast and audio cassette at a rate of about nine per year.

"It's a profitable tool for financially troubled institutions."

Initially, the federal grant enabled the college to establish an SCA broadcast capability; that is, to acquire studio facilities, hire staff, assess the education needs of the area, and begin production of the radio courses.

The cost of developing a three-credit course consisting of 24 programmes, 45 minutes in length, runs from $800 to $1 000. Most of that is paid to instructor who receives, in addition, $20 for each student who takes a radio course for credit.

The basic fee paid by students for a three-credit course, excluding textbooks, is $60 if taken by SCA, OR $70 by cassette. Students may audit courses for $25 plus an additional one-time charge of$10 for rental fo the SCA radio receiver, or $20 for rental of a cassette playback unit.

General administration and operating costs for the entire project come to $60 000 per year which is principally for the salaries of the director, a producer, an engineer, and a secretary. In keeping with the college's agreement with the West Virginia Educational Broadcasting Authority, there are not transmission costs other than a $200 per month rental charge for the telephone lines used to send programming to the transmitter.

(For more information about West Virginia Wesleyan's Outreach Project, contact Ron Roth, Director of Broadcasting and Continuing Education, Buckhannon, West Virginia 26301.)

Educational Radio in other Countries

South Carolina (Gidide in "South Carolina" 1983)

56 Instructional radio series approved by the South Carolina State Board of Education as instructional resources are listed. It is designed for use by South Carolina superintendents, district directors of instruction, curriculum writers, principals, and teachers inidentifying radio resources which will aid their schools in meeting (1) specific instructional requirements of the Defined Minimum Program; (2) the continuing objectives of the Basic Skills Assessment Programme; and (3) curriculum needs identified by significant concern in South Carolina Schools. Programmes are listed by subject areas, with level, curriculum need, series (grade level), and comments related to the Defined Minimum Program, basic skills, and objectives. Programmes are listed for the topics of language arts, foreign language, mathematics, natural science, social studies, music, health and safety, guidance, education for the handicapped and substance abuse.
References to those programmes are enclosed in Appendix 1. One can get an idea about ER programmes that can be broadcast, we can also try to buy some of these programmes and maybe the most practical thing is to buy the concept and to adapt the programmes to our specific situations.

Radio Basic Education in the Dominican Republic (IDCA, 1983)

Radio Basic Education, called RADECO in the Dominican Republic, is a departure from the school-based formula developed in Radio Math and Radio Language Arts- RADECO reaches out-of-school children between the ages of 7 and 14 with regular daily instruction in three broad areas - mathematics, language arts, and life skills including science and social studies. Classes take place in rural communities around the small Dominican town of Barahona. One hour a day for five days a week, radio broadcasts a full curriculum in these three areas. Building on the lesson development and formative evaluations of both Radio Math and Radio Language Arts, the RADECO team began broadcasts in January of 1983. Presently, some 1 000 children in 23 surrounding communities are participating in the programme. They meet in an enramada, or shelter, with a local volunteer who helps to stimulate student interest and acts as the community representative for the radio programme. Radio lessons are broadcast in the afternoon, between 4 and 5 p.m. to permit the children to complete their workday. InterAmerica Research Associates has been working to develop the radio programmes, select the community volunteers, and leave behind a trained staff of Dominicans.

Most lessons are divided equally between math and language arts skills, with entertainment, physical exercise, and health messages sandwiched between the rapidly paced programmes. Again, this approach builds on what proved to be successful in Radio Math and Radio Language Arts.

Because the RADECO programme works outside the formal school system, it has faced additional elements not common to its predecessors. For example, community relationships have played a much more important role in the project's development. At the same time, it has faced a series of unique problems, many of which have not yet been solved. The fast-paced lesson structures have been difficult to introduce. Early programmes, reflecting the lack of adequate staff training, were less effective than hoped. The interface of nonformal curriculum and official accreditation has been a continuing issue. Nevertheless, initial results are extraordinarily encouraging.

ALER, Latin America (White, 1983)

The Latin American radio schools are now quite widely known as an innovative adaptation of distance eduation methods for goals of social development among the rural poor. The 'radio forum' approach for teaching basic literacy, health and agricultural skills, which P. Joaquin Salcedo adapted in Colombia in 1947, was not in itself new. However, integrating it with a broad programme for developing rural leadership in semisubsistence 'campesino' farming communities proved to be an idea that caught on and spread rapidly in Latin America.

Today, many public and private educational institutions in Latin America are using some aspects of the radio school mode.

Six basic characteristics are typical of most of the radio school systems forming ALER.

1. A central team of administrators and teachers, at a national or regional level, who study the educational and development needs of rural communities, design study programmes related to these needs, prepare the broadcast classes and simple texts, select and train campesino (peasant) leaders as 'assistant field teachers' for local learning groups, and administer whatever examinations, distribution of certificates, etc that are part of the educational programme.

2. Simple printed texts and other learning materials that are distributed to students. Nearly all of the radio schools emphasize a 'multimedia approach' (combination of broadcast classes, printed texts, cassette audiovisiuals, etc) and are frequently a printing as well as a broadcast institution. Some larger systems, such as ACPO, publish a weekly or monthly campesino newspaper and publish a series of inexpensive booklets for a nominal sale price.
3. The assistant teacher, usually a community leader with at least some literate capacity, who enrols students in the community; attends to local administrative tasks such as requesting teaching

materials and administering examinations and reporting results; carries out the teaching instructions interspersed with the broadcast classes; and gives students the individual instruction they may need. These assistant teachers are given a series of short courses in community and rural development and are expected to form with their students a kind of core 'development team' within the community. Usually the assistant teachers come together for a monthly meeting at the municipal level to give reports and to receive continuing education from the regional supervisors.

4. An independent cultural-educational radio station which broadcasts, in addition to the radio school classes, a complete daily schedule of programming oriented to different groups in the campesino community: agricultural programmes for the men; programmes for different types of rural organizations such as cooperatives or agrarian movements; homemaking for rural women; popular 'country'music, radiodrama and humour; news that is relevant for campesino interests; and (in a part of the world where the church is an important institution) programmes supporting local religious organizations and culture. This radio station is looked upon as important not only as a general educational support for the more formal instructional classes, but as a means of reaching a larger 'open audience' that may never enrol in the radio school classes.

5. A programme of rural social development inspired initially by the radio school but eventually stimulating the formation of a series of other local organizations: a community development committee for local, self-help projects such as building schools, local road improvement, etc; various forms of cooperatives; rural women's organizations; and campesino agrarian speacial interest groups.

A major goal of the radio school is to encourage the formation of these organizations and to provide basic literacy and leadership skills. These enable semi-subsistence farmers, who have traditionally been excluded from local, regional and national decision-making, to direct their own organizations for development and social change. The most important educational process is not in the more or less formal

instruction but in the organizational activities at the community, municipal and provincial level.

6. Inserting the radio school programme within an existing structure of administration and rural development. The radio school systems typically operate with a skeleton staff in central offices and promote the radio schools in local communities through institutions that are already present in rural areas and have a strong cultural acceptance by campesino sectors of the population.
Not only do the central radio school offices reach remote campesino communities through these institutions, but thereby eliminate the necessity of a large field supervisory staff (and reduce costs substantially).

ALER now maintains a permanent central office in Quito with three departments:

- training, - providing an average of ten seminars and workshops each year involving some 250 persons of the administrative-teaching staff of the radio school systems;
- research and evaluation, primarily a research consultation service helping affiliates to plan and carry out internal and external evaluations;
- publications, - bringing out a regular newsletter and a series of books and manuals for the technical improvement of radio school educational programmes. This has been put on a more stable basis through a cooperative agreement with European funding agencies.

ECCA; Latin America
In the ECCA model, students do not assemble for a daily broadcast class but receive broadcast instruction alone in their homes so that the role of the field teacher is much less important. The students do not have a text, but receive exercise sheets each week and are guided through these by the broadcast instructions. The broadcast classes pose questions and encourage individual search for problem solutions. Once a week students meet with a field teacher who looks over the exercise sheet of each student, answers individual questions and may give some supplementary instruction to the group of students.

ER in the Third World

Attempts also have been made to use radio within the formal educational system for language instruction, with varying degrees of success. In the 1950's for example, Thailand began to teach English with the help of radio, with the goals of upgrading education and extending equal educational opportunity to the entire country. Towards the end of the same decade, the Phillipines began to use radio for classroom language instruction, and current efforts to put Philipino on an equal footing with English within the educational system have fostered new interest in this medium. The Radio Project in Senegal used a radio series to help teach oral and written French to primary school children. Mexico's Radioprimaria system, designed in response to a shortage of teachers, broadcast lessons in several subject areas, including Spanish.

India

Chaudhri (1986) describes a radio programme used in India. Accordingly the problem in India lies in it's rapidly developing technological sophistication and a national illiteracy rate which has increased from 14 to 36 per cent in the last three decades.

Three target groups were researched: out of school adults, school children and teachers.

Studies conducted by various researchers indicated an unsatisfacatory use of educational broadcasts in the country. Some of the reasons were as follows:

- the objectives of radio bore no relationship to the task of classroom teaching

- There was little involvement of teachers or any attempt to help them understand the significance of this development.
- Very little collaboration took place between researchers and educational radio producers. For example, instead of focusing each broadcast on one or two topics, they were diffused to several topics, and that too at secondary level.

The main objectives of the broadcasts in the project were the development of listening skills and language comprehension amongst the rural children of grades 1, 2 and 3.

Unstructed evaluation took place: In this evaluation 'listening children' showed gains in vocabulary, in the use of complex sentences, and in knowing stories and rhymes used in the programmes.

They also found that good programmes made for 'out of school' children may well be meaningful for 'in school' children. Alternatively, making programmes for 'in school' children and expecting them to be relevant to 'out of school' children is not likely to work. Hence the making of TV or radio programmes has necessarily to move away from being syllabus oriented to enrichment oriented. The first step in learning is to use the child's mother tongue which is already spoken and understood.

Ahrens & Ghodiuvala (1987) describe the use of radio for in-service teacher training in a situation where educational authorities changed the school curriculum and primary school teachers suddenly had to teach a new subject in their classes, a subject that they were not use to teach at all, they were not trained to teach this subject at all and in many cases did not know the subject as well as they should know. Actually they had to teach English as a second language while they themselves only studied English for 2-3 years at school, if at all. A radio programme for this specific target group (teachers) was compiled and broadcast, firstly, (1970) once a week and then in 1980 weekly.By now it is the only teacher training radio programme well documented. (There was also one in South Corea but not documented).
The project was structured as follows:

- a schedule for about twenty broadcasts. Individual scripts allocated to scriptwriters.
- a scriptwriters' workshop was convened. At this the scripts are discussed and the support material written.
- The State Institute prints and distributes the support material.
- Scriptwriters, working in pairs, prepare their scripts,

- Radio records and broadcasts the programmes.
- workshops for teachers where they learn about the series, are helped to make the best use of it, and have an opportunity to comment on it were assembled.
- All groups involved undertook a formal evaluation exercise.

Cycles, obviously, overlap; as soon as one is well under way, planning for the next one must begin.

A structure for each broadcast also evolved. It consisted of two elements: a Teach English (TE) element in which two presenters converse about a language item or teaching technique, and a Radio Demonsatration Class (RDC) in which a teacher and a small group of pupils simulate an English class.

The combination of these elements into a broadcast is shown in the following figure.

Simultaneously a need assessment research was conducted to find the real teacher needs, both in understanding the syllabus and in teaching it. With this in mind and the fact that the only aids the teacher had was the class text book it was decided that the main focus of the broadcasts would be the langauge and techniques covered in the textbook. Formative evaluation was also conducted.

They had feedback from the following sources:

- questionnaires, in Gujarati send to selected schools for each broadcast.
- workshops for teachers held twice a year in different districts
- informal comment from teachers and headteachers
- listerns' letters
- academic research

They found that the comments which come form classroom teachers particularly useful.

Conclusion: The more closely and clearly the broadcast and printed material can relate to the teachers' classroom work and needs, in content, language, and approach, the more likly they are to serve as useful tools for teacher training.

Broadcast must be designed contentwise and schedualingwise for teachers only. (They are not aimed at the pupils and not at the wide population)

Pakistan

An interesting project: Rehabilitation broadcasts for rural areas is described in document by M. Miles (1986)

The document presents a series of 14 scripts focusing on families with disabled children, written in English for radio broadcast in translation to rural village areas in Pakistan. Intended to educate the public concerning disabilities and how families can help their handicapped children participate as fully as possible in community life, the format typically consists of an informal conversation between a rehabilitation counsellor and parents, village leader, school headmaster, or disabled adult. Script

titles are as follows: (1) "One in Ten is Disabled," (2) "The Mentally retarded Child," (3) "People Who Have Fits," (4) "Physically Disabled Child (following polio)," (5) "The Blind Child," (6) "Blind Young Men," (7) "The Deaf Child: Diagnosis and General," (8) "Deaf Child (Speech Development)," (9) "Programme for the Mentally Retarded Child," (10) "Children with Cerebral Palsy," (11) "Speech Problems and Behaviour Difficulties," (12) "Cause and Prevention of Disabilities," (13) "Going to School," and (14) "Round Up" (a summary of the concepts and information presented in previous broadcasts). Brief appendices present notes on script adaptation and presentation, as well as a vignette of the role of the rehabilitation specialist.

For disabled persons in such villages, specialist rehabilitation skills and facilities are non-existeant. That is also the situation for about 70% of all disabled people in the world. Financial margins within families are very limited. The broadcasts are intended, therefore, to be congruent with these resource constraints, while appealing to be common sense and practical wisdom of the audience.

The Nicaraguan Radio Mathematics Project (Lesson 171) won the highest honour awarded for educational radio programmes in the eleventh biennial competition sponsored by the Japanese Broadcasting corporation, (Nippon Hoso Kyokai (NHK)). In 1982, Projecto Mathematic, one of the 166 entries from 92 broadcasting organizations won the Japan Prize for International Educational Programmes. Preliminary results of this innovation showed that the students in radio classrooms seemed to remain attentive for the full 30 minutes of each radio lesson and were equally keen to hear the instructional as well as entertainment portions of each broadcast. In addition, two series of year-end tests showed that the pupils in classrooms in which radio programmes were used along with related teacher-led activities learned more than their peers in traditional classrooms.

McAnany (1973) on the basis of his review of development-oriented projects in the developing world reported that educational radio is reaching only a fraction of its audience and that the potential of the radio as a medium of education has not been fully exploited.

Japan

Radio programmes intended for school use were inaugurated in Japan in 1935. Some interesting issues raised by their National survey are given here (for 1985)

Radio broadcasts provide accurate reading, pronunciation and intonation of f reign languages as well as models of singing and playing musicial instruments. It is, of course, desirable to have teachers provide such examples in class, but not every teacher can pronounce English properly or be an accomplished musician.

Similar programmes are also transmitted over radio. Old Japanese tales, fairy tales from Western Countries, and dramas by contemporary writers have been presented in the form of radiodramas for classroom use since radio school broadcasts began in 1935. These programmes enjoy high popularity among teachers.

Broadcasts dramatize children's daily lives and also include children's discussions of the problems which they encounter daily. In school, children listen to these programmes before or after they discuss their own problems. Such programmes provide good materials to enliven in-class discussions and widen their scope. Children discuss various problems in class concerning their lives at home, at school, and in society. They often consider such themes as courage, friendship, parent-child relations, and prevention of cruelty to animals. In junior and senior high school, sex, occupation, and international understanding are some of the often-discussed topics. Children exchange their opinions on these themes once or twice a week, and thus are encouraged to become good members of the community.

For these discussion hours, as of April 1986 NHK transmits three radio and five TV series. Children in primary school and the lower grades of junior grades of junior high school prefer to use the abovementioned themes presented in the form of drama, and those in the upper grades of junior high and senior high school prefer programmes in which the themes are discussed by children in the same age bracket as well as by specialists.

Radio programmes dealing with such themes now enjoy the highest rate of use in junior and senior high schools.

Broadcasts provide teachers with suggestions and models of how to teach their pupils.

Specialits cooperate in each step of the planning and production of school broadcasts, checking carefully whether the contents are accurate, the materials are educational and the composition is fit fot the intended age group.

The widespread use of school broadcasts in Japan is largely due to the well-organized group of teachers who use such broadcasts. Together with educational speacialist, teachers analyze the programmes and make studies on teaching through broadcasts; then ideas are exchanged among the programme producers, teachers and the educational authorities. As a result, many teachers' attitudes toward teaching using broadcasts have become more favourable and the broadcasting programmes have been improved as well.

Since 1935, the year school broadcasts were started in Japan, seminars on the use of school broadcasts have been held in various parts of the country. Thanks to such activities, teachers' associations for studying the use of radio broadcasts were founded in many parts of Japan.

Also, they assert that while in the past teachers basically thought that the contents of printed materials ought to be memorized by the children, this idea must be altered because future society requires a change in education which will lead children to independent thinking and creativity. A main purpose of education using broadcasts should be to make children learn directly from television and radio, not to use the broadcasts as mere auxiliaries for printed teaching materials.

An educational radio programme directed to the parents of mentally-handicapped children and a general radio programme intended especially for blind people are transmitted nationwide once a week.

For the present, however, the majority of teachers, especially in high schools, still support the idea that the programmes should be recorded and their contents evaluated beforehand. The majority further thinks that only programmes that fit their teaching aims should be selected and shown as recorded programmes on the most suitable occasion. Cassette tape records and protable VTR's are now widely used at school, and the adoption for school broadcasts continues to grow. Encouraged by this fact, many teachers who previously had not utilized broadcasts, because they sought to preserve their independence in selecting teaching materials, began to use recorded programmes.

It is possible, when preparing programmes, to take advantage of the instant (news) value of school broadcasting because of its ability to transmit educational materials over the airwaves. For example, if some event were to take place in some part of the world, it might not be possible to present a programme for the schools that very same day, but it should be possible to prepare a social studies programme on ER for showing the following week, or if, necessary, the week after that.

It is possible, on the other hand, to prepare programmes rich in resource value. The results of inquiring into this aspect of school broadcasting revealed that the expectations of primary school teachers in relation to the 'resource value' of school broadcasting have increased a great deal during the past year.

WDR - West Germany Radio

The first West Germany Radio (WDR1) apart from a reperesentative range of information (with the classical distinction made between news, current affairs and comment) also provides transmissions for certain target groups (such as school children, farmers, adolescents, senior citizens) and morning and afternoon programmes which serve regional information.

On the third programme (WDR 3) the emphasis is on the wide choice of serious music. The other priority is on demanding transmissions of the spoken word for the discriminating listener: lectures, discussions, features, background reports, experimental literature and radio plays. The third programme tries to present a wider context. Many of its programmes are arranged in serials and cycles - and schools broadcasts are also included.

Of interest are their English teaching programmes (as a second language) which are comprehensive and entertaining programmes. I have listened to some of them. They are willing to sell them to us. (See Duby 1986, overseas report) they are also interested in co-researching with us on educational radio issues.

United Kingdom (Ward, 1985)

In the United Kingdom, in the mid-eighties, thousands of schools continue to utilize the broadcasting service put out specially for them by BBC Education.

In the secondary sector, whilst the school radio service continues to provide subjects across the curriculum, the contradiction of broadcasting to whole classes rather than individuals begins to raise its head.

A specific concept was developed and put to the test. This was the concept of individualized learning by radio. It implies that a school student is capable of going off on his or her own to work on a particular project. Of cours this may be supervised by a teacher or tutor and is likely to fit into an overall scheme or more conventional learning. Individualized learning can develop a sense of independence and responsibility. It also has an advantage in that it can take place at a time and place chosen by the student.

The trailing proved that:

1. They liked the idea of an individual using a tape with a booklet. It was a change from the teacher!
2. Organizing individual students to do this, on a regular basis, might prove difficult for some teachers.
3. Some diagrams were a little confusing. Speech on the tape did not always match them perfectly.
4. The pace of speech was too fast (for some).
5. The pace of speech was too slow (for others).
6. Almost no one liked the idea of having acted teenagers. Many students reported that they sounded false. This was more a criticism of my scripting than the two actors!
7. A major criticism by the students was that they felt that the style of programme was 'patronizing'. Why could they not be talked to 'straight'
8. Teachers found small points of inaccuracy which they were not prepared
9. Everyone liked the everyday-life connections in the programme, especially the docter.

However, the best news we had was that the youngsters had genuinely enjoyed listening and that they wanted good, straight speech. The documentary approach seemed right for them. Crisp presentation, clear references to parts of the booklet and plenty of contributions from the medical world. The most insolubale problem, however, was the typing-of tape and booklet.

Use of symbols

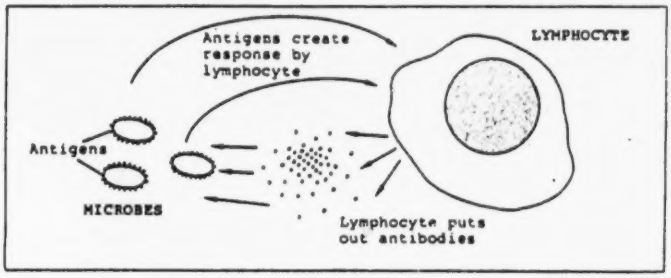
Notice the symbols 't' and 'r' and how they fit with the illustrations. Quite simply, 't' stands for tape and 'r' for revision. 'The Lympahtic System'. This is our way of telling the student, firstly, to use the tape at this point and, secondly, what will be heard.

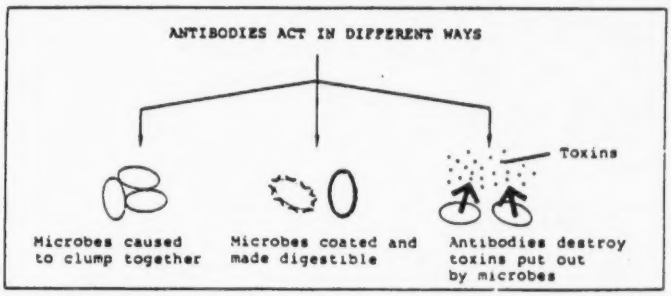
BEST COPY AVAILABLE

For that see the BBC solution in the following figure.

(t) LYMPHOCYTES INTO BATTLE - ANTIBODIES AGAINST ANTIGENS!

- lymphocytes produce antibodies in the presence of antigens (see drawings below)
- antibodies fight infection




ANTIBODIES ACT IN DIFFERENT WAYS
Toxins
Microbes caused to clump together
Microbes coated and made digestible
Antibodies destroy toxins put out by microbes

(r) GO BACK OVER THE DRAWINGS!
When you have completed your revision return to the tape.

(t) THE LYMPHATIC SYSTEM

- vessels and glands (see drawing on page 9, opposite)
- a single lymph gland (see drawing on page 9, opposite)
- lymphatic system connects with the blood system
- epidemics and immunity - discovery of the first vaccine
- immunisation - children and teenagers; foreign travel
- use and non-use of anti-biotics

Ward (1985)

At the beginning of each booklet is a guide to explain how to use the tape/booklet system and an explanation of the symbols.

SELF-HELP - YOUR WAY THROUGH TAPE AND BOOKLET

Using the BBC tape and this booklet you can work your way through material which will extend your knowledge of biology and will be helpful for your examinations. Work through at your own pace and do not feel under pressure to complete a topic in one single session.

EXPLANATION OF THE SYMBOLS

Ward (1985)

(p)	**PREPARATION** - to read this section
(t)	**TAPE** - now press the 'play' button
(r)	**REVISION** - go back over this part of the tape or booklet
(e)	**EXERCISE** - try something out for yourself

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Appenix 1

Phillips, A. Wayne, Ed.

ITV & Radio Resources in the Defined Minimum Programme 1985-86 Curriculum Guide.

This guide is a good example to show a) well identified curriculum needs (b) well constructed guide to ER programmes aimed at clearly defined clients. (c) Selection of subject matters for Ed. Radio.

It is recommended to look at their tapes and to investigate the possibility of buying them for broadcasting in S.A.

ITV and Radio Resources
in the Defined Minimum Program

1985-86
Curriculum Guide

A guide for use of Instructional Television and Radio Programs presented over the South Carolina Educational Television and Radio Networks, in meeting curriculum needs in elementary, junior high and senior high levels of instruction.

Clyde H. Green
Director, Office of Instructional Technology

Sidney B. Cooper
Deputy Superintendent for Instruction

Dr. Charlie G. Williams
Superintendent, State Department of Education

Use of This Guide

ITV AND RADIO RESOURCES IN THE DEFINED MINIMUM PROGRAM CURRICULUM GUIDE is designed for use by superintendents, district directors of instruction, curriculum writers, principals and teachers in identifying ITV and Radio resources which will aid their schools in meeting specific instructional requirements of the Defined Minimum Program and continuing objectives of the Basic Skills Assessment Program (Act 631). It also aids in selection of those resources which will help classroom teachers meet curriculum needs identified by curriculum consultants of the Department of Education to be of significant concern in South Carolina schools.

Other suggested uses of the guide include:

a. Curriculum planning at all levels—classroom, school or district.
b. Development of school-wide programs and approaches to meet curriculum goals.
c. Resource Room/Media Center planning.
d. Identification of resources for special groups such as the handicapped and the exceptional child.
e. Incorporation of ITV and Radio resources into curriculum guides.
f. Justification for expanding television or radio reception.

The State Board of Education approved as instructional resources for 1985-86 one-hundred and seventy nine (179) instructional television series and fifty-two (52) instructional radio series referenced in this guide. A description and telecast schedule for each of the two-hundred and thirty-one (231) series may be found in the South Carolina Instructional Television and Radio Resources Book for 1985-86.

IR Reference Table To Basic Skills Assessment Program

Continuing Objective	Elementary	Middle/Jr. High	Secondary
Reading			
Decoding and word meaning	SPELL DOWN (3-8)	SPELL DOWN (3-8) CATCH ON 6-8)	
Details	WE'RE ALL EARS (K-3) LEARN TO LISTEN (4-6) LISTENING/4 (4-6)	LEARN TO LISTEN (4-6) LISTENING/4 (4-6)	
Main idea	WE'RE ALL EARS (K-3) READ ME THE COMICS (1-3) LEARN TO LISTEN (4-6) LISTENING/4 (4-6)	LEARN TO LISTEN (4-6) LISTENING/4 (4-6)	
Analysis of literature		THE WORLD OF F SCOTT FITZGERALD (9-12) SHAKESPEARE'S PROLOGUES (9-12)	THE WORLD OF F SCOTT FITZGERALD (9-12) SHAKESPEARE'S PROLOGUES (9-12)
Mathematics			
Concepts	MATHEMATICS PLUS (2-3)		

Instructional Radio Resources

Subject Area: Language Arts*

Ideas – to buy and/or to adapt

Level: Elementary

Defined Minimum Program Grades 1-3, 550 minutes, Grades 4-6, 500 minutes weekly
*At least 50 percent of the instructional time in language arts for grades 5-6 must be devoted to the teaching of composition and grammar Basic Skills Assessment Program reading objectives adopted under this program include decoding, word meaning, details, main idea, reference usage, inference analysis of literature. Writing objectives are handwriting, mechanics, word usage, sentence formation and composition

Curriculum Need	Series (Grade Level)	Comments
1 Strengthen non-testable abilities	THE BETTER TO LISTEN WITH (K-3)	This series is designed to develop awareness that listening is a positive act like reading (to distinguish it from hearing). It promotes the development of simple listening skills leading up to purposeful listening as a basis for remembering and understanding
2 Develop the ability to listen for meaning	READ ME THE COMICS (1-3) WE RE ALL EARS (K-3) TURN ON YOUR EARS (4-6)	These series represent a systematic development and entertaining approach to the teaching of listening skills. Great emphasis is placed on development of common reading skills identifying details and main ideas, making inferences, listening for sequence and summarizing. Applicable to the Basic Skills Assessment Program details and inference objective
	LISTENING/4 (4-6)	Listening for meaning is a major thrust of this developmental listening series. Series emphasizes five major skills: identifying deta'', and main ideas, making inferences, listening for sequence and summarizing. Applicable to the Basic Skills Assessment Program details and inference objective.
	LEARN TO LISTEN (4-6)	This developmental listening series stimulates active listening for sequence, details, comprehension, evaluation and enjoyment. Applicable to the Basic Skills Assessment Program details and main idea objective.
	OLD TALES AND NEW (K-3)	This series provides entertaining stories for listening with themes based on human dignity, understanding, and feelings. They are laced with humor, imagination and logic
	THE SPIDER'S WEB (3-7)	THE SPIDER'S WEB spins tales from the best of children's literature including classic fantasy, biography and history and cultural environment
	MEET BARNEY BOOKWORM (4-6)	BARNEY BOOKWORM promotes reading for fun by dramatizing fourth through sixth graders' favorite stories. Barney ends the story at a moment of high suspense, motivating students to seek out the book for themselves in the library. All 16 titles to the series are available in paperback
3 Develop appreciation of literature	MYTHS AND LEGENDS (4-7)	Series dramatizes the origins of historic and literary myths and legends by placing them in the time frame of their creation and identifying their story in terms of existing beliefs, needs, and understandings.
4 Encourage growth in all aspects of language acquisition	SPEAK UP SPEAK OUT (4-6)	Series emphasizes public speaking techniques throughout. It uses dramatic vignettes from well-known folklore and children's stories to point out the relationship between language and thought as they apply to the student's world of home and school
5 Strengthen vocabulary	SPELL DOWN (3-8)	
Supplemental/Enrichment Resources		
	ACT IT OUT (4-6)	ACT IT OUT will help children get excited about language and experience the pleasure and satisfaction of successful communication
	AMERICAN FOLK TALES (4-6)	From this series children will gain a better understanding of their American heritage

	SOUND IDEAS (6-12)	SOUND IDEAS is designed to instruct students in the production of audio tapes, thereby strengthening communications skills, language, research, and logic. It may be used as a preparatory activity for the National Public Radio Young People's Radio Festival

Level: Middle and Junior High

Required minimum Program Grades 7-8 250 minutes weekly
1. At least 50 percent of the instructional time in language arts for grades 7-8 must be devoted to the teaching of composition and grammar
2. Special instructions in reading should be provided for at least 250 minutes weekly for students reading two or more grade levels below their grade placement. This may be offered either separate from or as part of the regular language arts program.
Basic Skills Assessment Program: reading objectives adopted under this program include decoding, word meaning, details, main ideas, reference usage, inference, analysis of literature.
Writing objectives are: handwriting, mechanics, word usage, sentence formation and composition.

Curriculum Need	Series (Grade Level)	Comments
1. Strengthen non-testable abilities: the ability to listen for meaning, the ability to speak, learn, and effectively and appropriately	LEARN TO LISTEN (4-6)	This developmental listening series stimulates active listening for sequence, details,comprehension, evaluation, and enjoyment. Listening for meaning is a major thrust of this series. Applicable to the Basic Skills Assessment Program details, main ideas, and inference objectives.
	LISTENING 4 (4-6)	LISTENING 4 emphasizes five major skills: identifying details, identifying main ideas, making inferences, listening for sequence, and summarizing. The series is based on the concept that children will listen willingly and attentively to anything that intrigues, surprises or challenges them. Applicable to the Basic Skills Assessment Progam details, main idea and inference objective.
	TURN ON YOUR EARS (4-6)	These ten programs will lead the teacher and students into an earnest, consistent attempt to maintain and improve listening skills and listening habits of all kinds. It promotes the courtesy of really listening while others speak.
	SPEAK UP, SPEAK OUT (4-7)	SPEAK UP, SPEAK OUT uses dramatic vignettes from well-known children's stories to point out the relationships between language and thought as they apply in the student's world at home and school.
	THE SPIDER'S WEB (3-7)	THE SPIDER'S WEB stimulates children's creative power by forcing them to create a picture in their own minds. The series spins tales from the best of children's literature.
	MYTHS AND LEGENDS (4-7)	Series dramatizes the origins of historic and literary myths and legends by placing them in their creation and identifying their story in terms of existing beliefs, needs and understanding.
2. Provide opportunity to apply reading skills taught	MEET BARNEY BOOKWORM (4-6)	BARNEY BOOKWORM promotes reading for fun by dramatizing fourth and sixth graders' favorite stories. Barney ends the story at a moment of high suspense, motivating students to seek out the book for themselves in the library. All 16 titles to the series are available in paperback.
	WILD, WACKY WONDERFUL WHIZBANG WORD EMPORIUM (6-8)	WORD EMPORIUM is a series designed to interest, entertain and excite students as it introduces them to the worlds of poetry and prose.
3. Strengthen vocabulary--there is a need to enrich vocabulary with a consistent program of vocabulary development	SPELL DOWN (3-8)	SPELL DOWN is designed to promote activities which will increase the spelling expertise of students and to foster an interest in words, their roots, their meanings, and their use. Applicable to the Basic Skills Assessment Program word meaning objectives.
	CATCH ON (6-8)	CATCH ON improves the understanding of word meaning and comprehension of the spoken word through use of contextual clues, morphological analysis, semantics and listening skills. Applicable to Basic Skills Assessment Program word meaning objective.
Supplemental/Enrichment Resources		
	ACT IT OUT (4-6)	ACT IT OUT will help children get excited about language and experience the pleasure and satisfaction of successful communication.

Level: Secondary

Defined Minimum Program Course opportunities with a maximum of six units including courses in remedial reading, and English I, II and III will be offered At least 50 percent of instructional time in courses used for graduation requirements must be devoted to the teaching of composition and grammar Typical learning experiences to be provided include communication skills, in-depth study of literature, creative writing, literature enjoyment and appreciation, oral and written self-expression, and instruction guaranteeing reading and writing skills
Basic Skills Assessment Program reading objectives adopted under this program include decoding, word meaning, details, main idea, reference usage inference analysis of literature
Writing objectives are handwriting, mechanics, word usage, sentence formation and composition

Curriculum Need	Series (Grade Level)	Comments
1 Strengthen non-testable abilities	CONVERSATIONS WITH WILLIAM SHAKESPEARE AND CERTAIN OF HIS FRIENDS (9-12)	The series reveals Shakespeare—the man—showing how this artist commented on thoughts that are vital to our modern lives Some of the subjects discussed are responsibility, love, war, morality, religion, loneliness, politics, hopes, and humanism The open-ended programs are intended to provoke individual thought
2 Appreciate literature and drama	SHAKESPEARE'S PROLOGUES (9-12)	The PROLOGUES provide an excellent orientation to the Shakespeare plays now under production by PBS television Each program familiarizes the student with certain aspects of the plays introduces them to the sound of the language of Shakespeare's plays, and should motivate them to want to see or read the play themselves Applicable to the Basic Skills Assessment Program analysis of literature objective
	SHAKESPEARE PORTRAITS IN SOUND (9-12)	The PORTRAITS are in fact sound paintings or verbal images of Shakespeare and his life and times
	THE WORLD OF F SCOTT FITZGERALD (9-12)	This 16 half-hour series contains a documentary encompassing clusters of important themes of the life and literature of the 20's and 30's using Fitzgerald's experiences as focus Applicable to the Basic Skills Assessment Program analysis of literature objective
Supplemental/Enrichment Resources		
	SOUND IDEAS (8-12)	SOUND IDEAS is designed to instruct students in production of audio tapes thereby strengthening communications skills, language, research, and logic It may be used as a preparatory activity for the National Public Radio Young People's Radio Festival

Subject Area: Foreign Language

Level: Secondary

Defined Minimum Program All accredited high schools will include at least two years of foreign language in their programs A school not meeting this requirement must be able to justify this omission Schools with fewer than 300 students may alternate first and second year courses when not practical to offer two levels concurrently

Curriculum Need	Series (Grade Level)	Comments
1 Diversify content of basic text	FAMILIE BAUMANN I & II (9-12)	Series provides German language instruction in two parts Elementary and intermediate with commentary in the English language

Subject Area: Mathematics

Level: Elementary

Defined Minimum Program Grades 1-3 225 minutes weekly. Grades 4-6. 250 minutes weekly
Basic Skills Assessment Program Mathematics objectives adopted under the Basic Skills Assessment Program are concepts, operations, measurement, geometry and problem solving

Curriculum Need	Series (Grade Level)	Comments
1 Motivational math instruction Active involvement of students in the learning process	MATHEMATICS PLUS (2-3)	One of the objectives of MATHEMATICS PLUS is to make mathematics much more enjoyable and rewarding The series should not be considered simply as enrichment—the topics discussed in each broadcast are clearly defined in the scope and sequence of most mathematics texts for grades two and three Most of the student activities involve small group work and/or role playing Applicable also to the Basic Skills Assessment Program Mathematics concepts objective

Subject Area: Natural Science

Level: Middle and Junior High

Defined Minimum Program Grades 1-3. 125 minutes weekly. Grades 4-6. 175 minutes weekly Environmental education is required as an integral part of science, social studies and health

Curriculum Need	Series (Grade Level)	Comment
1 Make Science instruction more relevant	TWENTIETH CENTURY SCIENCE (6-8)	Using drama and fantasy, these programs encourage students to investigate contemporary scientific issues The series deals with significant scientific concepts and events that are shaping our thinking and our history
2 Increased knowledge and appreciation of our environment and of the interaction of natural and cultural influences upon it	PRIVATE EYE ON THE ENVIRONMENT (5-9)	This series of dramatic lessons deals with environmental problems around the world, from huge oil spills to worldwide famines The stories are suspenseful, fast-moving and open-ended

Level: Secondary

Defined Minimum Program Grades 9-12, biology, chemistry, and physics are among the course offering which will be included every year Schools (Grades 9-12) with enrollments of 400 or less may alternate chemistry and physics At least 20 percent of instructional time in all science subjects will be devoted to student-centered laboratory experiences All accredited high schools shall include environmental studies as a part of the instructional program

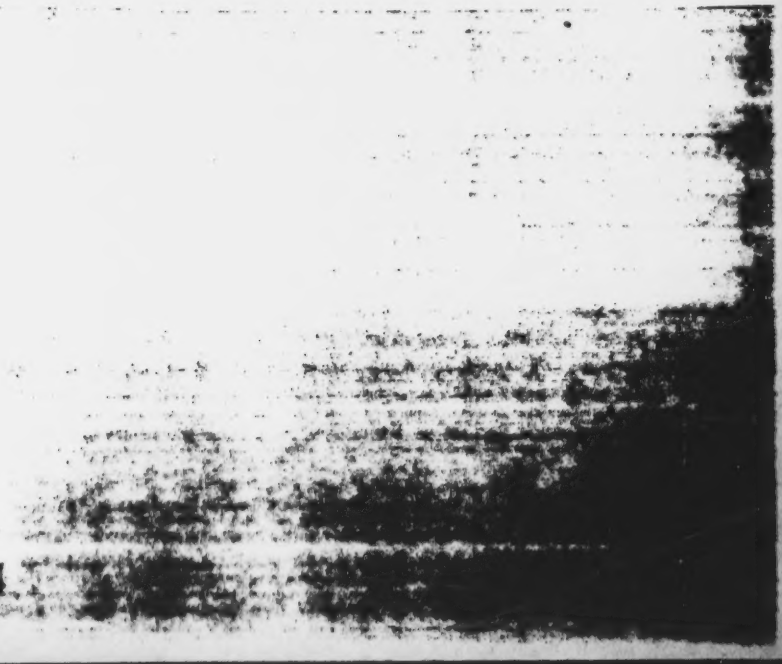
Curriculum Need	Series (Grade Level)	Comments
1 Enrich classroom instruction	MAN AND MOLECULES (10-12)	This series presents Nobel Prize-winning chemists and other authoritative scientists in discussions of current and future issues of concern in science and society, health and medicine, the natural world, energy, environment and space

Subject Area: Social Studies

Level: Elementary

(Defined Minimum Program Grades 1-3, 125 minutes weekly, Grades 4-6, 175 minutes weekly. Environmental education is required as an integral part of science, social studies and health

Curriculum Need	Series (Grade Level)	Comments
1. Provide opportunities to gain knowledge of our history so students can profit from our experiences, build on our heritage, and apply fundamental social studies concepts to their daily lives	MAKERS OF THE AMERICAN REVOLUTION (4-9)	This series dramatizes some of the great events and major themes of the Revolution through the stories of patriots who shaped the events. Among the themes dealt with are taxation, slavery, regulation of commerce and protest versus violent demonstration
	OUR AMERICAN LEADERS (4)	Series whisks students back in history to hear "on-the-scene" quasi-interviews with thirty important figures in American history, explorers, nation-builders, humanitarians and leaders in science and the arts. Follow up activities emphasize analyzing events and conditions from the past
adopt idea	LIVING IN COLONIAL AMERICA (4-6)	Each program in this series focuses on a different aspect of everyday life during the Revolutionary War years, highlighted through use of music, narrative vignettes, and stories
	WHO ARE THE AMERICANS (4-8)	Upper elementary students will be earwitnesses to the great change that took place in the texture of American life as millions of immigrants pushed their way across two oceans to partake of the fruits of the land of opportunity. Through dramatic portrayals of family groups of many nationalities, races, and religions, students will gain an understanding of the aspirations and hardships involved in gaining a foothold in the new land
2. Increased knowledge of the everyday workings of our economic system	WHATCHA SEE IS WHATCHA GET (6-8)	This series presents consumer education programs which alert student listeners to the devices of the marketplace. The series is intended to create a sense of consumer awareness which will lead to wiser use of personal resources
	IF YOU'VE GOT A DIME, YOU'VE GOT A CHOICE (4-6)	This series teaches aspects of consumer education particularly vital to youngsters in the marketplace, i.e. advertising claims
adopt to S.A. needs	WISE CHOICES, II (4-6)	The lessons in this series are designed to create a sense of "wise consumer awareness" and involve the student in a variety of activities related to extending their consumer competencies
	DEVELOPMENTAL ISSUES (9-12)	DEVELOPMENTAL ISSUES deals with the concepts and reality of economic development in a global perspective. The program format is audio-magazine style, enabling each lesson to include a wide variety of materials



	WHO ARE THE AMERICANS? (4-8)	From this series students can gain appreciation of the great change that took place in the texture of American life as millions of immigrants came into our country. The series provides students with an understanding of the aspirations and hardships involved in gaining a foothold in the new country
	OUR AMERICAN LEADERS (4)	Series takes students back in time to hear on-the-scene quasi-interviews with thirty important figures in American history
2. Increased knowledge of the everyday workings of our economic system	WHATCHA SEE IS WHATCHA GET (6-8)	This series presents consumer education programs which alert student listeners to the devices of the marketplace. The series is intended to create a sense of consumer awareness which will lead to wiser use of personal resources
	DEVELOPMENTAL ISSUES (7-12)	Series deals with the concepts and realities of economic development in a global perspective. The program format is audio-magazine style, enabling each lesson to include a wide variety of materials.

Level:Secondary

Defined Minimum Program will include each year
A. U.S. History and Constitution
B. Economics and American Government
C. Three other courses in the approved social studies area
All accredited high schools will include environmental studies as a part of the instructional program

Curriculum Need	Series (Grade Level)	Comments
1. Attainment of the level of knowledge, skills and understanding necessary to participate constructively in a democratic society	INQUIRY: THE JUSTICE THING (9-12)	With the new age of majority comes the realization that instruction is needed at the high school level in American law and the American legal system. INQUIRY seeks to promote an understanding of the ways which govern our land. Series is guaranteed to promote discussion and debate and encourages students to explore their own personal values and ethics
	MAKERS OF THE AMERICAN REVOLUTION (4-9)	This series dramatizes some of the great events and major themes of the Revolution through the stories of patriots who shaped the events
	TWENTIETH CENTURY PRESIDENTS (9-12)	TWENTIETH CENTURY PRESIDENTS offers information which can provide perspective and a clearer picture of these presidents as politicians and as human beings. The material can also serve as a springboard for discussion and research
	HATS IN THE RING (10-12)	The objective of this series is to focus upon eight presidential campaigns during the period 1800-1864 and thereby learn about the great issues of the times, and the changes and developments in the American political system
	THE ADVOCATES IN BRIEF (9-12)	THE ADVOCATES IN BRIEF presents selected controversial questions and issues originally presented on the television series of the same name. The radio version uses only those programs where the issues are timely and relate to current affairs for high school students
adopt the idea	NEWS LINE (6-12)	NEWS LINE presents a summary of the key news stories of the preceding week from international, national and state happenings. Foreign names and places will be defined as will new or complex events, problems or situations
	IT'S YOUR WORLD (6-12)	IT'S YOUR WORLD leans heavily on social studies-related stories from excerpts of National Public Radio programs such as ALL THINGS CONSIDERED and other sources.
2. Increased knowledge of everyday working of our economic system	DEVELOPMENTAL ISSUES (9-12)	Series deals with the concepts and reality of economic development in a global perspective. The program format is audio-magazine style, enabling each lesson to include a wide variety of materials.
3. Increased knowledge and appreciation of our environment and of the interaction of natural and cultural influences upon it	PRIVATE EYE ON THE ENVIRONMENT (5-9)	This series of dramatic lessons deals with environmental problems around the world, from hugh oil spills to worldwide famines. The stories are suspenseful, fast-moving and open-ended

	WISE CHOICES, II (4-6)	The lessons in this series are designed to create a sense of wise consumer awareness and involve the students in a variety of activities related to extending their consumer competencies.
	IF YOU'VE GOT A DIME, YOU'VE GOT A CHOICE (4-6)	This series teaches aspects of consumer education particularly vital to youngsters in the marketplace i e advertising claims

Subject Area: Music

Level: Elementary

Defined Minimum Program Fine Arts, Grades 1-6, 75 minutes weekly.

Curriculum Need	Series (Grade Level)	Comments
1 Provide assistance to schools and to the classroom teacher in meeting the minimum standards	CATCH A SOUND (1-3)	CATCH A SOUND will help teachers create a genuine love of music among primary students. The series is also designed to introduce concepts of music such as listening, rhythm, tempo, pitch variation, timbre movement,and dramatization
	MOVIN' FREE (K-3)	The series is designed to supplement regular classroom rhythm programs by giving students the opportunity to experience the fundamentals of locomotion and simple rhythmic activity by moving creatively to music
	UP TO YOUR EARS (5-6)	UP TO YOUR EARS was produced to provide the teacher and music specialist with music materials to which they might not have access, to encourage children to be more aware of the sounds around them and to experiment with simple instruments
2 Provide opportunity for students to explore music interests and to participate in general music programs	THE MAN AND HIS MUSIC (5-9)	This radio series introduces its listeners to several great composers and their masterworks. The works are paired, dramatizing the life of a composer one week, and presenting highlights from his major works the following week

Level: Middle and Junior High

Defined Minimum Program A fine arts program including music and art will be provided as an elective for 36 weeks. Courses in fine arts must be offered during the school day at a scheduled period. Each nine-week course must be scheduled for a minimum of 250 minutes weekly.

Curriculum Need	Series (Grade Level)	Comments
1 Provide opportunity for students to explore music interests and to participate in general music programs	UP TO YOUR EARS (5-6)	UP TO YOUR EARS was developed to provide classroom teachers and music teachers with supplemental instruction materials in music and to encourage students to listen to the sounds around them with more awareness than before. It encourages them to actually experiment with simple instruments of their own making to produce their own kinds of music. Folk music and electronic music provide the musical areas of study
	THE MAN AND HIS MUSIC (5-9)	This radio series introduces its listeners to several great composers and their masterworks. The works are paired, dramatizing the life of a composer one week, and presenting highlights from his major works the following week

Level: Secondary

Defined Minimum Program A school program will include a minimum of two courses in the fine arts area.

Curriculum Need	Series (Grade Level)	Comments
1 Provide opportunity for students to explore music interests and participate in general music programs	THE MAN AND HIS MUSIC (5-9)	This radio series introduces its listeners to several great composers and their masterworks. The works are paired, dramatizing the life of a composer one week, and presenting highlights from his major works the following week

	MUSIC. WHAT ABOUT IT? (9-12)	This series was created for use by adults in and out of school. It should provide excellent supplementary material for any teacher involved in music, its designed purpose and effect on man's life.

Subject Area: Health and Safety

Level: Elementary

Defined Minimum Program. Grades 1-6, 75 minutes weekly, 36 weeks annually.
Environmental education is required as an integral part of science, social studies and health.

Curriculum Need	Series (Grade Level)	Comments
1 Provide progressive program of health instruction that is consistent with growth and development patterns of students	HEALTHY, HAPPY AND WISE (1-3)	Learning how to have a good mind in a healthy body should begin early in the education of children. The series encourages young students to develop proper habits and attitudes to live a vigorous, sane, and exciting life. The series also is designed to stimulate class discussion and projects
	HEALTHY, WELL-FED AND WISE (K-3)	In the primary grades, teachers are concerned with developing readiness for learning in many areas. Nutrition should be one of these areas. The series is an effective tool in teaching simple nutrition.

Subject Area: Career and Vocational Education

Level: Grades 4-9

Curriculum Need	Series (Grade Level)	Comments
1 Students need to focus on the interrelatedness of various life-career roles, family, citizenship, leisure time and occupation	PEOPLEWORKS (6-9) adapt	PEOPLEWORKS presents programs about family peer groups, interest groups and community groups, as well as the individuals whose actions work together to make the works go. The series makes students aware of the individual identity and career development as well as the actions of others in the peopleworks.
2 Students need to learn techniques for analyzing and appraising their interests, aspirations, aptitudes, abilities and values in terms of various career options	DISCOVER YOURSELF (6-9)	Series presents the true stories of seven people who made correct career choices, eminently suited to their abilities, interests, and attitudes. Through the childhood experiences of these seven, the student gains insight into the importance of self-awareness.

Subject Area: Guidance

Level: Grades 1-6

Curriculum Need	Series (Grade Level)	Comments
1 Provide instructional resources to aid teachers in teaching concepts related to effective education	LISTENING TO MY FEELINGS (1-3)	One aim of this series is to help children learn to listen closely to their feelings and to understand the true source and quality of their feelings. After listening, the students will be motivated to share personal experiences related to those on the programs leading to a greater understanding of emotion as common to most human beings.

recommendations

To buy a to adopt or adapt

	WHO CARES? (3-5)	These programs represent a request by teachers to "Help us help our kids toward intelligent valuing. We need help with values clarification." These programs are designed to help students (with a paticular issue) to choose freely from alternatives after thoughtful consideration of the alternatives presented through the vehicle of social studies concerns
	SPEAKOUT (4-6)	SPEAKOUT is designed to encourage students to discuss inner problems and conflicts, and to try to find solutions

Subject Area: Education For The Handicapped

Level: Primary

Curriculum Need	Series (Grade Level)	Comments
1. Provide highly motivating effective reading instruction	READ ME THE COMICS (1-3)	READ ME THE COMICS presents a review of pre-reading and early reading skills presented in a delightful format for young children. The series also encourages listening for comprehension and helps motivate students to do purposeful reading.
2. Provide opportunity for students to improve motor skills	MOVIN' FREE (K-3)	The series is designed to supplement regular classroom rhythm programs by giving students the opportunity to experience the fundamentals of locomotion and simple rhythmic activity by moving creatively to music.

Subject Area: Subtance Abuse

Level: Grades 1-3

Curriculum Need	Series (Grade Level)	Comments
1. Provide instruction for developing positive feelings	TOOLS (1-3)	TOOLS is a series which departs from the usual approach to drug education. TOOLS is about the factors that influence values and relationships, young people in their decision making about anything--feelings as well as abilities, values as well as social pressures, circumstances as well as abilities. Programs put emphasis on trusting, learning to love, and accepting oneself and needs. The series aims to develop respect for nature and natural processes